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EDITORIAL

The spirit of seismological research has more than once been awakened by a great disaster. The Mino-Owari earthquake in Japan, which occurred in October 1891, and was the most disastrous in more than thirty-five years within that seismically classic province, gave birth to the famous Earthquake Investigation Committee, known as the E. I. C. Its objects were announced to be: (1) "*to investigate whether there are any means of predicting earthquakes;*" and (2) to see "*what can be done to reduce the disastrous effects of earthquakes to a minimum.*" After more than fifteen years of research, to which the ablest minds of Japan have contributed, it is necessary to admit that it is only the last-mentioned endeavor which has been crowned with success.

In 1896 the Committee on Seismological Investigations of the British Association for the Advancement of Science, whose founder and energetic secretary is Professor John Milne, made its first report replacing an earlier standing committee which reported upon the volcanic and earthquake phenomena of Japan. In the following year the well-known *Erdbebenkommission* of the Vienna Academy of Sciences was founded. The value to the world of science of the three committees above mentioned it would be difficult to estimate.

The disastrous California earthquake of April 18, 1906, has been signalized by the formation of a Committee on Seismology of the American Association for the Advancement of Science; which committee, like its British cousin, is composed of fifteen members. The gentlemen selected, who represent all sections of the country, and the more important institutions likely to be engaged in seismological research, are as follows: L. A. Bauer, Carnegie Institution; W. W. Campbell, Lick Observatory; C. E. Dutton, U. S. Army, Washington, D. C.; G. K. Gilbert, U. S. Geological Survey; J. F. Hayford, U. S. Coast and Geodetic Survey; W. H. Hobbs, University of Michigan; L. M. Hoskins, Stanford University; T. A. Jaggard, Massachusetts Institute of Technology; Otto Klotz, Ottawa Observatory;

A. C. Lawson, University of California; C. F. Martin, U. S. Weather Bureau; W. J. McGee, St. Louis Public Museum; H. F. Reid, Johns Hopkins University; C. J. Rockwood, Jr., Princeton University; and R. S. Tarr, Cornell University. In the preliminary organization of the committee Dr. G. K. Gilbert was chosen chairman and Dr. W. H. Hobbs, secretary.

Some of the objects in view in forming the committee on seismology in America are as follows:

1. To be available for, and to initiate counsel in connection with, legislation which provides for investigation of earthquakes or the means for mitigating their dangers.
2. To bring into harmony all American and Canadian institutions doing seismological work, and to guard against unnecessary duplication of studies.
3. To organize, if thought best, a correlated system of earthquake stations, which should include the outlying possessions and protectorates.
4. To advise regarding the best type or types of seismometers for the correlated stations.
5. To disseminate information regarding construction suited to earthquake districts.
6. To collect data regarding the light as well as the heavy shocks, and to put the results upon record.
7. To start investigations upon large problems of seismology.
8. To advise with some weight of authority when catastrophic earthquakes have wrought national calamity.

An additional object of the committee's conferences has been suggested by the latest disaster in Jamaica. Press notices, presumably correct, call attention to marked changes of soundings within the harbor of Kingston as a result of the earthquake; and the interruptions of the Bermuda and Panama cables probably register larger movements along the scarps bordering the great deeps. The region as a whole (and the harbor of Kingston in particular) is one within which particularly accurate soundings have been made. A resurvey as early as is practicable will probably yield valuable data regarding the nature of under-sea changes at the time of earthquakes. There is probably today no portion of the field of seismological research so little exploited, and yet so full of promise, as the study of data already in the possession of telegraphic cable companies. The little already accomplished by Milne has demonstrated both the value of these data

and the reluctance with which the cable companies consent to part with them. The committee should see whether, either alone or in co-operation with the British committee, something may not be accomplished in securing access to these valuable data. If the companies could be made to see that studies by the committee are likely to serve them in suggesting better methods of meeting their special difficulties, much might be gained.

Almost at the same time that the American Committee on Seismology was founded there was organized upon the Pacific coast the Seismological Society of America. Though the name is as broad as the continent, the composition of the Board of Directors and the Scientific Committee indicates that the field of the society's endeavors is to be the Pacific states. The president of the society is George Davidson, and the secretary George D. Lauderbach. The chairman of the Scientific Committee is Professor Andrew C. Lawson, who is also first vice-president of the Board of Directors. The other members of the Scientific Committee are J. C. Branner, G. K. Gilbert, C. Derleth, Jr., J. U. Le Conte, A. S. McAide, and H. F. Reid. Membership in the society is fixed at \$2 per year for ordinary membership and \$25 for life membership. It is announced that a regular publication is one of the objects of the society. An American journal of seismology would do much to develop the latent interest in the subject, and it is to be hoped that one will soon be launched.

There is another movement, less in evidence as yet, but hardly less certain to arrive. Several American universities following the example of Johns Hopkins, are now making plans for the equipment of an earthquake station, and close upon these installations is sure to follow a new emphasis placed upon seismology as a part of a geologist's training. The chair in seismology founded in the University of Tokyo in 1886, and occupied successively by the distinguished seismologists Sekiya and Omori, is today unique in the world; and, with the exception of an unsuccessful course in seismology given years ago at the Sorbonne, the branch has not been dignified as yet by separate treatment in the university curriculum. A beginning has just been made at the University of Michigan, where in the winter semester of 1906-7 a lecture course upon seismic geology has been given two hours each week.

W. H. H.

Under the civil polity of the United States, certain functions which relate to the welfare of the whole nation are assigned to the national government, while other functions of more circumscribed bearings are reserved to the states. The principles which underlie this polity are as applicable to the scientific functions of the government as to any other. Those inquiries which bear upon the common welfare, irrespective of state limits, fall within the sphere of the national investigative organizations; those which relate to local interests belong to the province of the state scientific organizations, or to those instituted by municipal or other sub-state governments. It is obviously easier to state this basis of division than to apply it; for few scientific inquiries are so local as not to benefit the whole nation, directly or indirectly, and few are so general that they do not affect the welfare of the people of one state more than those of others.

None the less, if these general principles are clearly apprehended and kept steadily in mind, a working system in reasonable accord with them can be established and maintained in the scientific field, as it has been for more than a century in the political. It is clear that those problems which are embodied in the phenomena of more than one state in such a way that the investigations necessary for their solution must be pursued in neglect of state lines, fall within the functions of the national organization; while those which lie wholly within state limits, and do not bear trenchantly on any fundamental or general problem, as clearly fall within the functions reserved to the states respectively. Into the one or the other of these two great classes fall no small part of the geological problems of the domain belonging jointly to the nation and the states, and these may be easily distinguished in practice. Until we change our system of government, the national survey should not undertake the latter class of problems, nor the states the former. The intermediate class of problems, not so clearly defined, are to be compassed by co-operation and mutual agreement.

If these considerations are true and just, it is clear that every state has a scientific function to perform; for no state government is true to the interests of its people, in this stage of human evolution, that does not care for the intellectual as well as the political welfare of its

people, and scientific inquiry is fundamental to the intellectual development of every progressive people.

We hold, therefore, that no state is doing its duty to its people, or its part as a factor in our governmental system, which does not maintain a well-organized system of scientific investigation covering the essential physical conditions and the potential resources that relate to the health, prosperity, and happiness of its people. Among these we naturally place a geological survey. A state is shirking its duty and its responsibility, if it leaves all this investigative work to the national government. It is not right for the national government to do it all, as functions are now apportioned. Let every state, therefore, do its part zealously. Let the national government do its part, but only its part. A spirited endeavor by each to fulfil its functions, attended by a generous co-operation when the dividing line between functions is obscure or debatable, will develop and preserve, in the scientific field, that community of action in promoting the higher welfare of our people which is the soul of our civil polity.

T. C. C.